

Appl. No.: 10/039,992
Amdt. Dated October 26, 2005
Response to Office Action of June 28, 2005

REMARKS/ARGUMENTS

Claims 1-21 are currently pending in the application. The Examiner has objected to the specification as the application referenced at page 17 is allegedly missing the filing date and the status of the application. The Examiner has objected to claim 14 based on the term "recordable media." Claims 1-21 have been rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description and enablement requirements. Claim 13 has also been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Claims 1-21 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,751,627 issued to Sternin. Claims 1-21 have also been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,768,739 issued to Kobayashi et al. Lastly, claims 1-21 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious in view of U.S. 6,046,980 issued to Packer in view of Applicant Admitted Prior Art.

Applicants respectfully traverse the rejections set forth above. To address the objection to the specification in the instant application, Applicants have amended the specification to specify the filing date and the status of the application identified in paragraph [0039], as set forth above. In addition, claim 14 has been canceled, obviating the Examiner's objection thereto. As to the Examiner's rejections of claims 1-21 under 35 U.S.C. § 112, set forth above, Applicants have amended the claims in a manner sufficient that complies with 35 U.S.C. § 112. For example, claims 1-21 have been amended to omit the limitation "at the same time." Claim 13 has been amended to omit use of means-plus-function elements. Furthermore, Applicant has also canceled claim 21, and added new claims 22 and 23.

In addition, Applicant has amended claim 1 as follows:

1. In a hierarchical classification system including a classification tree

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comprising a plurality of traffic classes, wherein at least one traffic class of the plurality of traffic classes corresponds to a first classification type and at least one other traffic class in the plurality of traffic classes corresponds to a second classification type, wherein the classification tree further comprises a cache storing a data structure representing a cacheable portion of the classification tree, wherein the data structure corresponds to the at least one traffic class of the first classification type, a method comprising:

walking the classification tree to determine whether an incoming flow matches a traffic class in the classification tree; and

upon encountering the cacheable portion of the classification tree, performing a lookup on the cache to compare the incoming flow with the at least one traffic class of the first classification type to determine whether the incoming flow matches one of the at least one traffic class.

Applicant has amended claim 7 in a similar manner. In addition, claim 13 has been amended to include a classification engine that conditionally walks the classification tree depending on whether the results of the cache lookup, and creates entries in the cache depending on whether the incoming flow matches a traffic class in the cacheable portion of the classification tree. Furthermore, claim 15 has been amended, as set forth above, to include creation of first and second data structures representing first and second cacheable portions of the classification tree.

The Examiner cites Sternin and Kobayashi, separately, as allegedly invalidating references under 35 U.S.C. § 102(e). However, neither of the cited references discloses or suggests the claimed subject matter. Sternin discloses a system that facilitates access to data in a network management protocol table. In Sternin, network connections are identified by tuples of network connection attributes. Various connection state parameters, such as packet and byte count, are stored in a network protocol table. A hash table storing hashes of the tuples points to various entries in the network protocol table. The tuples are also placed into a search tree for subsequent searches. The search tree is

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essentially a sorted hierarchy of tuples (sorted based on a given element of the tuple) to facilitate searches for tuples. See Sternin, Col 4:62-Col.5:4; see also Col. 5:41-49. In other words, it appears that the search tree is used for efficiently searching the hash table index 404. Sternin, however, does not disclose or suggest the representation of cacheable portions of a hierarchical classification tree as a data structure, such as a hash table, as disclosed in the application and claimed above. Rather, as discussed above, Sternin uses trees to efficiently locate entries in a hash table. Furthermore, Sternin does not disclose walking a hierarchical classification tree and accessing a cache when a cacheable portion of the hierarchical classification tree is encountered. Still further, Sternin does not disclose or suggest a hierarchical traffic classification tree having traffic classes of a first classification type, and other traffic classes of a second classification type.

Similarly, Kobayashi does not disclose a use of a data structure to represent cacheable portions of a hierarchical classification tree as claimed. Kobayashi discloses a router with a cache configured to increase the cache hit probability. As the '739 patent discloses, cache hit probabilities are low, because each cache entry corresponding to only one network address. Kobayashi, Col. 3:1-3. To do this, the '739 patent discloses the use of masks with cache entries such that each cache entry may apply to more than one destination network address. Kobayashi, Col. 6:26-45. Figure 9 thru 13 of Kobayashi correspond to an embodiment of the router wherein the forwarding table entries include a destination field, an interface field, and a pointer field which is used to store a pointer to a node in a tree management list. Kobayashi, Col. 16: 58-63. When a packet is received, the interface number and the pointer are returned based on the destination address in the packet. Kobayashi, Col. 16:58 – Col. 17:2. Similarly, the cache table retrieval system has an LPM cache table where each entry includes a destination field, an interface field, and a tree-node pointer field. Kobayashi, Col. 18:46-47. However, the tree list node hierarchy

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appears to be defined by the relationship between the routing table entries and their respective prefix lengths. Kobayashi, Col. 19:44-Col. 20:7; see also Figure 17. The tree list appears to define how many and what forwarding table entries are cached (and also deleted) in response to finding a matching entry in the forwarding table. See Kobayashi, Col. 24: 33-48 & Figures 17 & 39; see also Kobayashi, Col. 19:27 – Col. 20:40. However, it does not appear that the tree list defines how the routing table entries are searched, since matching entries for the cache, or the forwarding table, are searched using an LPM retrieval method. Kobayashi, Col. 24:20-27. Accordingly, Kobayashi does not appear to disclose walking a hierarchical classification tree. Furthermore, Kobayashi does not disclose walking a hierarchical classification tree and accessing a cache when a cacheable portion of the hierarchical classification tree is encountered. Kobayashi also does not disclose the creation of entries in a cache that indicate that an incoming flow does not meet a traffic class in the cacheable portion, such that the searches (walk-thrus) of the cacheable portion of the classification tree can be omitted (see claim 13, above). Still further, Kobayashi does not disclose or suggest a hierarchical traffic classification tree having traffic classes of a first classification type, and other traffic classes of a second classification type (see claim 15).

Lastly, as to the rejection of claims 1-21 based at least in part on Packer, as a preliminary matter, the rejection is improper as U.S. Patent No. 6,046,980 to Packer, and the subject matter of the present application were commonly owned by Packeteer Inc. at the time the claimed subject matter was invented.

Furthermore, the alleged combination of Packer, Applicant Admitted Prior Art and the alleged teachings of class 711 fails to establish a prima facie case of obviousness. Applicant admitted prior art merely describes a hierarchical traffic classification system and certain problems that can exist in such systems. Similarly, U.S. Patent No. 6,046,980

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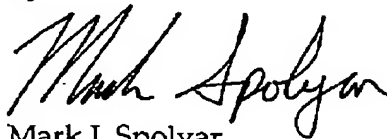
discloses the classification of network traffic, but does not disclose the use of a cache as disclosed and claimed to facilitate classification of network traffic. Lastly, the caching definitions in class 711, alone or in combination, do not disclose or suggest the claimed subject matter. Further, the Examiner's stated rationale for combining the references is inapposite, as the cache according to the claims does not place data closer to the end user. Rather, the cache according to the claims allows for grouping of traffic classes by classification type for faster classification of network traffic.

Still further, the alleged combination does not disclose walking a hierarchical classification tree and accessing a cache when a cacheable portion of the hierarchical classification tree is encountered. As to claim 13, for example, the alleged combination also does not disclose the creation of entries in a cache that indicate that an incoming flow does not meet a traffic class in the cacheable portion, such that the searches (walk-thrus) of the cacheable portion of the classification tree can be omitted. Still further, the alleged combination does not disclose or suggest a hierarchical traffic classification tree having traffic classes of a first classification type, and other traffic classes of a second classification type (see claim 15, above).

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In light of the foregoing, Applicant believes that all currently pending claims are presently in condition for allowance. Applicant respectfully requests a timely Notice of Allowance be issued in this case. If the Examiner believes that any further action by Applicant is necessary to place this application in condition for allowance, Applicants request a telephone conference with the undersigned at the telephone number set forth below.

Respectfully Submitted,
LAW OFFICE OF MARK J. SPOLYAR
By



Mark J. Spolyar
Reg. No. 42,164

Date: October 26, 2005

Customer Number: 30505
Law Office of Mark J. Spolyar
38 Fountain St.
San Francisco, CA 94114
415-826-7966
415-480-1780 fax